Abstract

INCREASING THE SNR OF SUCCESSIVE APPROXIMATION TYPE ADCS WITHOUT COMPROMISING THROUGHPUT PERFORMANCE SUBSTANTIALLY

When converting an analog signal to N-bit digital codes, high SNR (signal to noise ratio) by generating multiple N-bit codes from the same analog sample and averaging the N-bit codes. However, the entire N-bit code is determined only a single time, and only P-bit (P less than N) codes are generated. The P-bit codes may be averaged, and the N-bit code is corrected based on the average value to generate an accurate N-bit digital code. As P can be much less than N, the correction can be implemented in a few iterations, thereby enabling the ADCs to be implemented with a high throughput performance. Due to the correction, a high SNR may be attained as well.